

## REMARKS/ ARGUMENTS

### Support for Amendments

Applicant amends independent claims 16, 24, and 27. Support for the amendments may be found throughout the specification including the claims as originally filed. Specific support for each amendment is provided below for the convenience of the examiner.

Independent claim 16 is amended to include the limitations previously examined in dependent claims 17 and 21. Claims 17 and 21 are currently objected to as being dependent from a rejected base claim; however, the Examiner has indicated that if the limitations of claims 17 and 21 are amended into the base claim, the claims would likely receive favorable consideration. More specifically, claim 16 includes the following limitations: the non-reducing disaccharides previously examined in claim 17, namely trehalose (D-glucopyranosyl-D-glucopyranoside), sucrose ( $\beta$ -D-fructofuranosyl- $\alpha$ -D-glucopyranoside), and a derivative thereof; and the specific combinations of amino acid sequences previously presented in claim 21, namely SEQ ID NOS: 2-9.

Similarly, independent claim 24 is amended to recite the specific non-reducing disaccharides previously examined in claim 17, namely trehalose (D-glucopyranosyl-D-glucopyranoside), sucrose ( $\beta$ -D-fructofuranosyl- $\alpha$ -D-glucopyranoside), and a derivative thereof; and the specific combinations of amino acid sequences previously examined in claim 21, namely SEQ ID NOS: 2-9.

Independent claim 27 is amended to include the limitations previously examined in claims 30 and 34, which commensurate in scope with the limitations previously set forth in claims 17 and 21. More specifically, amended claim 27 includes the following limitations: the non-reducing disaccharides previously examined in claim 30, namely trehalose (D-glucopyranosyl-D-glucopyranoside), sucrose ( $\beta$ -D-fructofuranosyl- $\alpha$ -D-

glucopyranoside), and a derivative thereof; and the specific combinations of amino acid sequences previously examined in claim 34, namely SEQ ID NOS: 2-9.

### **Examiner Interview**

Applicant thanks the Examiner for the interview conducted on January 29, 2008 with Applicant's attorney of record. During the examiner interview, claims were proposed that Applicant believed to commensurate with the scope of subject matter previously considered to be favorable in the pending office action (see 10/10/2007 office action at pg 4). More particularly, the proposed amendments included limitations to all of the independent claims. The limitations included recitation of specific disaccharides, namely trehalose (D-glucopyranosyl-D-glucopyranoside), sucrose ( $\beta$ -D-fructofuranosyl- $\alpha$ -D-glucopyranoside), and a derivative thereof and included recitation of SEQ ID NOS: 2-9. The examiner indicated the proposed amendments appeared to commensurate within the scope of the favorable subject matter.

### **Response to Claim Objections**

In the Office Action, the Examiner objected to claims 17 and 21 because the claims depend from a rejected base claim. The Examiner further indicated that based on the arguments, the references of record are not presently deemed to provide sufficient teaching/suggestions for one of ordinary skill in the art to be motivated to select the specific combinations of SEQ ID NOS: 2-9 of claim 21 and the specific non-reducing disaccharides of claim 17. The Examiner concluded that if the limitations of both of these claims are distinctly amended into the base claim, the claims would like receive favorable consideration.

In response, Applicant has amended base claim 16 to include the specific combinations of SEQ ID NOS: 2-9 of claim 21 and the specific non-reducing disaccharides of claim 17, namely trehalose (D-glucopyranosyl-D-glucopyranoside), sucrose ( $\beta$ -D-fructofuranosyl- $\alpha$ -D-glucopyranoside), and a derivative thereof.

In addition, Applicant has amended base claim 24 to include the specific combinations of SEQ ID NOS: 2-9 of claim 21 and the specific non-reducing disaccharides of claim 17, namely trehalose (D-glucopyranosyl-D-glucopyranoside), sucrose ( $\beta$ -D-fructofuranosyl- $\alpha$ -D-glucopyranoside), and a derivative thereof.

In addition, Applicant has amended base claim 27 to include the specific combinations of SEQ ID NOS: 2-9 of claim 34 (the same SEQ IDs of claim 21) and the specific non-reducing disaccharides of claim 30, namely trehalose (D-glucopyranosyl-D-glucopyranoside), sucrose ( $\beta$ -D-fructofuranosyl- $\alpha$ -D-glucopyranoside), and a derivative thereof (the same non-reducing disaccharides of claim 17).

Since the limitations of claims 17, 21, 30 and 34 have been amended into base claims; dependent claims 17, 21, 30 and 34 have been canceled. In view of the amendments and arguments set forth, Applicant respectfully requests the claim objections be withdrawn.

### **Response to Claim Rejections Under 35 U.S.C. § 103**

#### **I.**

Claims 16, 19, 20, 22, 24, 27, 28, 30-36 and 38 Are Not Obvious  
Over Nguyen et al. In View of Browne et al.

Claims 16, 19, 20, 22, 24, 27, 28, 30-36 and 38 are rejected under 35 U.S.C §103(a) as being obvious over Nguyen et al. (J. Biotech, 1999, 72, 115) in view of Browne et al. (Nature, 2002, 416, 38).

For the reasons set forth in the previous response to office action dated July 31, 2007, which are incorporated by reference in their entirety herein, the above rejected claims are not obvious over Nguyen et al. in view of Browne et al. prior to amendment; however, to expedite allowance of the present application, Applicant has amended independent claims 16, 24 and 27 to incorporate the limitations previously set forth in claims 17 and 21 or 30 and 34 (which generally correspond to 17 and 21). Applicant has

canceled claims 19, 20, and 30-34. Thus the references are discussed with respect to pending claims 16, 22, 24, 27, 28, 35-36 and 38.

Independent claim 16 is amended to include the limitations previously examined in claims 17 and 21, which are currently objected to as being dependent from a rejected base claim. More specifically, amended claim 16 includes a process for stabilizing or preserving a biomolecule, the method including the steps of: (a) providing a biomolecule immobilized on a surface; and (b) covering the surface with a composition including: i) at least one non-reducing disaccharide selected from the group consisting of trehalose (D-glucopyranosyl-D-glucopyranoside), sucrose ( $\beta$ -D-fructofuranosyl- $\alpha$ -D-glucopyranoside), and a derivative thereof; and ii) at least one protein or polypeptide of the LEA class including a motif including 11 amino acids, the motif selected from the group consisting of: (a) K-T-A-E-F-R-D-S-A-G-E (SEQ ID NO. 2), (b) K-G-Q-E-F-K-E-R-A-G-E (SEQ ID NO. 3), (c) K-A-E-E-T-K-Q-R-A-G-E (SEQ ID NO. 4), (d) K-M-D-E-T-K-Q-R-A-G-E (SEQ ID NO. 5), (e) K-A-R-K-T-K-D-S-A-A-E (SEQ ID NO. 6), (f) K-A-K-E-Y-K-D-Y-T-A-E (SEQ ID NO. 7), (g) K-A-R-E-T-T-E-K-A-R-E (SEQ ID NO. 8), and (h) T-K-D-S-A-A-E-K-A-R-E (SEQ ID NO. 9).

Neither Nguyen et al. or Browne et al., alone or in combination demonstrate the limitations set forth in amended claim 16. Specifically, neither Nguyen et al. or Browne et al. demonstrate a process for stabilizing or preserving a biomolecule, the method including the steps of: (a) providing a biomolecule immobilized on a surface; and (b) covering the surface with a composition including: i) at least one non-reducing disaccharide selected from the group consisting of trehalose (D-glucopyranosyl-D-glucopyranoside), sucrose ( $\beta$ -D-fructofuranosyl- $\alpha$ -D-glucopyranoside), and a derivative thereof; and ii) at least one protein or polypeptide of the LEA class including a motif including 11 amino acids, the motif selected from the group consisting of: (a) K-T-A-E-F-R-D-S-A-G-E (SEQ ID NO. 2), (b) K-G-Q-E-F-K-E-R-A-G-E (SEQ ID NO. 3), (c) K-A-E-E-T-K-Q-R-A-G-E (SEQ ID NO. 4), (d) K-M-D-E-T-K-Q-R-A-G-E (SEQ ID NO. 5), (e) K-A-R-K-T-K-D-S-A-A-E (SEQ ID NO. 6), (f) K-A-K-E-Y-K-D-Y-T-A-E (SEQ ID NO. 7), (g) K-A-R-E-T-T-E-K-A-R-E (SEQ ID NO. 8), and (h) T-K-D-S-A-A-E-K-A-R-E (SEQ ID NO. 9). Thus Applicant respectfully requests the rejection be withdrawn.

Dependent claim 22 depends from amended claim 16. Since neither Nyugen et al. or Browne et al. alone or in combination demonstrate the limitations set forth in claim 16, claim 22 is not obvious over Nguyen et al. in view of Browne et al. and Applicant respectfully requests the rejection be withdrawn.

Independent claim 24 is amended to recite the specific nonreducing disaccharides listed in claim 17 and the specific sequences listed in claim 21. Claims 17 and 21 are currently objected to as being dependent from a rejected base claim. Specifically, independent claim 24 provides a process for the production of a surface with an immobilized and stabilized or preserved biomolecule, including the steps of: (a) providing a surface with a biomolecule immobilized thereon; and (b) covering the biomolecule with a composition including: i) at least one non-reducing disaccharide selected from the group consisting of trehalose (D-glucopyranosyl-D-glucopyranoside), sucrose ( $\beta$ -D-fructofuranosyl- $\alpha$ -D-glucopyranoside), and a derivative thereof; and ii) at least one protein or polypeptide of the LEA class including a motif including 11 amino acids, wherein the motif is selected from the group consisting of: (a) K-T-A-E-F-R-D-S-A-G-E (SEQ ID NO. 2), (b) K-G-Q-E-F-K-E-R-A-G-E (SEQ ID NO. 3), (c) K-A-E-E-T-K-Q-R-A-G-E (SEQ ID NO. 4), (d) K-M-D-E-T-K-Q-R-A-G-E (SEQ ID NO. 5), (e) K-A-R-K-T-K-D-S-A-A-E (SEQ ID NO. 6), (f) K-A-K-E-Y-K-D-Y-T-A-E (SEQ ID NO. 7), (g) K-A-R-E-T-T-E-K-A-R-E (SEQ ID NO. 8), and (h) T-K-D-S-A-A-E-K-A-R-E (SEQ ID NO. 9).

Neither Nguyen et al. or Browne et al., alone or in combination disclose the limitations set forth in amended claim 24. Specifically, neither Nguyen et al. or Browne et al. disclose a process for the production of a surface with an immobilized and stabilized or preserved biomolecule, including the steps of: (a) providing a surface with a biomolecule immobilized thereon; and (b) covering the biomolecule with a composition including: i) at least one non-reducing disaccharide selected from the group consisting of trehalose (D-glucopyranosyl-D-glucopyranoside), sucrose ( $\beta$ -D-fructofuranosyl- $\alpha$ -D-glucopyranoside), and a derivative thereof; and ii) at least one protein or polypeptide of the LEA class including a motif including 11 amino acids, wherein the motif is selected from the group consisting of: (a) K-T-A-E-F-R-D-S-A-G-E (SEQ ID NO. 2), (b) K-G-Q-E-F-K-E-R-A-G-E (SEQ ID NO. 3), (c) K-A-E-E-T-K-Q-R-A-G-E (SEQ ID NO. 4), (d)

K-M-D-E-T-K-Q-R-A-G-E (SEQ ID NO. 5), (e) K-A-R-K-T-K-D-S-A-A-E (SEQ ID NO. 6), (f) K-A-K-E-Y-K-D-Y-T-A-E (SEQ ID NO. 7), (g) K-A-R-E-T-T-E-K-A-R-E (SEQ ID NO. 8), and (h) T-K-D-S-A-A-E-K-A-R-E (SEQ ID NO. 9). Thus, claim 24 is not obvious over Nguyen et al. in view of Browne et al. and Applicant respectfully requests the rejection be withdrawn.

Independent claim 27 is amended to recite the specific nonreducing disaccharides listed in claim 30 and the specific sequences listed in claim 34. Claims 30 and 34 commensurate in scope with claims 17 and 21 (which are currently objected to as being dependent from a rejected base claim). Specifically, claim 27 provides a surface of a material selected from the group consisting of glass, quartz glass, quartz, silicon, polymers, nitrocellulose, nylon and micro fiber membranes, and paper, wherein the surface includes a biomolecule immobilized thereon, covered with a stabilizing or preserving composition including at least one non-reducing disaccharide selected from the group consisting of trehalose (D-glucopyranosyl-D-glucopyranoside), sucrose ( $\beta$ -D-fructofuranosyl- $\alpha$ -D-glucopyranoside), and a derivative thereof, and at least one protein or polypeptide of the LEA class including a motif including 11 amino acids, wherein the motif is selected from the group consisting of: (a) K-T-A-E-F-R-D-S-A-G-E (SEQ ID NO. 2), (b) K-G-Q-E-F-K-E-R-A-G-E (SEQ ID NO. 3), (c) K-A-E-E-T-K-Q-R-A-G-E (SEQ ID NO. 4), (d) K-M-D-E-T-K-Q-R-A-G-E (SEQ ID NO. 5), (e) K-A-R-K-T-K-D-S-A-A-E (SEQ ID NO. 6), (f) K-A-K-E-Y-K-D-Y-T-A-E (SEQ ID NO. 7), (g) K-A-R-E-T-T-E-K-A-R-E (SEQ ID NO. 8), and (h) T-K-D-S-A-A-E-K-A-R-E (SEQ ID NO. 9).

Neither Nguyen et al. or Browne et al., alone or in combination disclose the limitations set forth in amended claim 27. Specifically, neither Nguyen et al. or Browne et al. disclose a surface of a material selected from the group consisting of glass, quartz glass, quartz, silicon, polymers, nitrocellulose, nylon and micro fiber membranes, and paper, wherein the surface includes a biomolecule immobilized thereon, covered with a stabilizing or preserving composition including at least one non-reducing disaccharide selected from the group consisting of trehalose (D-glucopyranosyl-D-glucopyranoside), sucrose ( $\beta$ -D-fructofuranosyl- $\alpha$ -D-glucopyranoside), and a derivative thereof, and at least one protein or polypeptide of the LEA class including a motif including 11 amino acids, wherein the motif is selected from the group consisting of: (a) K-T-A-E-F-R-D-S-A-G-E

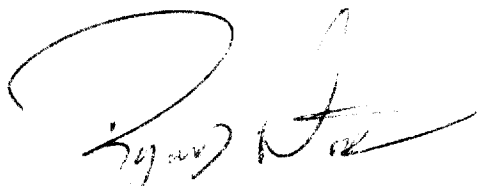
(SEQ ID NO. 2), (b) K-G-Q-E-F-K-E-R-A-G-E (SEQ ID NO. 3), (c) K-A-E-E-T-K-Q-R-A-G-E (SEQ ID NO. 4), (d) K-M-D-E-T-K-Q-R-A-G-E (SEQ ID NO. 5), (e) K-A-R-K-T-K-D-S-A-A-E (SEQ ID NO. 6), (f) K-A-K-E-Y-K-D-Y-T-A-E (SEQ ID NO. 7), (g) K-A-R-E-T-T-E-K-A-R-E (SEQ ID NO. 8), and (h) T-K-D-S-A-A-E-K-A-R-E (SEQ ID NO. 9). Thus Applicant respectfully requests the rejection be withdrawn and claim 27 allowed.

Claims 28, 35, 36 and 38 depend from amended claim 27. Since neither Nguyen et al. or Browne et al. alone or in combination demonstrate the limitations set forth in claim 27, claims 28, 35, 36 and 38 are not obvious over Nguyen et al. in view of Browne et al. and Applicant respectfully requests the rejections be withdrawn.

In view of the amendments and arguments set forth, Applicant respectfully requests all rejections be withdrawn and request a notice of allowance be issued for this application.

Respectfully submitted,

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Date

  
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